

Notice of Allowability

Application No.

10/072,818

Examiner

Patrick H. Cathey II

Applicant(s)

GRAZIANI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment received on April 7th, 2005.
2. ☒ The allowed claim(s) is/are 1,2,6-14,18-26 and 30-36 (Renumbered 1-27).
3. ☒ The drawings filed on February 8th, 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Robert Iannucci, Registration No. 33,514, on July 12th, 2005.

Claim 1 should be amended as such:

1. (Currently Amendment) A process for generating an output MPEG bitstream from an MPEG input bitstream, said output MPEG bitstream having at least one entity chosen among syntax, resolution, and bitrate modified with respect to said input bitstream, the process comprising:

distinguishing, in said input bitstream, non-affecting portions that substantially do not affect variation in bitrate and affecting portions that substantially do affect variation in bitrate;

when said syntax is to be modified between said input bitstream and said output bitstream, subjecting said non-affecting portions of said input bitstream to translation of said syntax into the syntax of said output bitstream and transferring said non-affecting portions subjected to syntax translation to said output bitstream;

when said resolution is to be modified between said input bitstream and said output bitstream, subjecting said non-affecting portions of said input bitstream to translation of said resolution into the resolution of said output bitstream and transferring

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said non-affecting portions subjected to the resolution translation to said output bitstream;

transferring said affecting portions from said input bitstream to said output bitstream in substantial absence of processing operations when said resolution is left unaltered between said input bitstream and said output bitstream; and

when said resolution is modified between said input bitstream and said output bitstream, subjecting said affecting portions of said input bitstream to a filtering in the domain of the discrete cosine transform, then transferring said affecting portions subjected to filtering in the domain of the discrete cosine transform to said output bitstream; and

carrying out a scaling of a motion field to enable association with pixel macroblocks having a resolution corresponding to the modified resolution of said output bitstream when said resolution is to be modified between said input bitstream and said output bitstream, wherein said scaling of the motion field includes an operation of applying to motion vectors associated with said input bitstream a transformation that correlates the motion vectors to a given number of motion vectors associated with at least one of the macroblocks;

wherein said at least one of the macroblocks is from a set made up of:
macroblocks that are to be merged into a new macroblock; and
macroblocks that surround the ones that are to be merged into the new
macroblock;

wherein said transformation applied to the motion vectors associated with said input bitstream comprises the operations of:

- multiplying said motion vectors by respective weighting factors;
- accumulating the results of the above multiplication; and
- dividing the results accumulated by the sum of said weighting factors.

Claim 13 should be amended as such:

13. (Currently Amended) A system for generating an output MPEG bitstream from an input MPEG bitstream, said output MPEG bitstream having at least one entity chosen among syntax, resolution, and bitrate modified with respect to said input bitstream, the system comprising:

- a sorting module configured to distinguish in said input bitstream, first portions and second portions that respectively substantially do not affect and do affect the variation in bitrate;

- a syntax module configured to subject said first portions of said input bitstream to the translation of said syntax into the syntax of said output bitstream, said syntax module configured to transfer said first portions subjected to syntax translation to said output bitstream when said syntax is to be modified between said input bitstream and said output bitstream;

- a resolution module configured to subject first portions of said input bitstream to the translation of said resolution into the resolution of said output bitstream, said resolution module configured to transfer said first portions subjected to resolution

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translation to said output bitstream when said resolution is to be modified between said input bitstream and said output bitstream;

a transfer line configured to transfer said second portions from said input bitstream to said output bitstream in the substantial absence of processing operations when said resolution is to be left unaltered between said input bitstream and said output bitstream; and

a processing set configured to subject said second portions of said input bitstream to a filtering in the domain of the discrete cosine transform and configured to transfer said second portions subjected to filtering in the domain of the discrete cosine transform to said output bitstream when said resolution is to be modified between said input bitstream and said output bitstream, wherein said processing set includes at least one element configured to scale a motion field in order to enable association to pixel macroblocks having a resolution corresponding to the modified resolution of said output bitstream;

wherein said at least one of the macroblocks is from a set made up of :
macroblocks that are to be merged into a new macroblock; and
macroblocks that surround the macroblocks that are to be merged into the new
macroblock;

wherein said at least one element is configured to apply to motion vectors associated with said input bitstream a transformation to correlate the motion vectors to a given number of motion vectors associated with at least one of the macroblocks, wherein said at least one element is configured to:

multiply said motion vectors by respective weighting factors;
accumulating the results of the above multiplication; and
divide the results accumulated by the sum of said weighting factors.

Claim 25 should be amended as such:

25. (Currently Amended) A computer program product directly loadable in the memory of a digital computer and comprising software code portions for causing a computer to generate an output MPEG bitstream from an MPEG input bitstream, said MPEG output bitstream having at least one entity chosen among syntax, resolution, and bitrate modified with respect to said input bitstream, by:

distinguishing, in said input bitstream, non-affecting portions that substantially do not affect variation in bitrate and affecting portions that substantially do affect variation in bitrate;

subjecting said non-affecting portions of said input bitstream to translation of said syntax into the syntax of said output bitstream by transferring said non-affecting portions subjected to syntax translation to said output bitstream when said syntax is to be modified between said input bitstream and said output bitstream;

subjecting said non-affecting portions of said input bitstream to translation of said resolution into the resolution of said output bitstream by transferring said non-affecting portions subjected to the resolution translation to said output bitstream when said resolution is to be modified between said input bitstream and said output bitstream;

transferring said affecting portions from said input bitstream to said output

bitstream in substantial absence of processing operations when said resolution is left unaltered between said input bitstream and said output bitstream;

subjecting said affecting portions of said input bitstream to a filtering in the domain of the discrete cosine transform, then transferring said affecting portions subjected to altering in the domain of the discrete cosine transform to said output bitstream when said resolution is to be modified between said input bitstream and said output bitstream; and

scaling a motion field to enable association with pixel macroblocks having a resolution corresponding to the modified resolution of said output bitstream when said resolution is to be modified between said input bitstream and said output bitstream, wherein said scaling of the motion field includes an operation of applying to motion vectors associated with said input bitstream a transformation that correlates the motion vectors to a given number of motion vectors associated with at least one of the macroblocks;

wherein said at least one of the macroblocks is from a set made up of:
macroblocks that are to be merged into a new macroblock; and
macroblocks that surround the ones that are to be merged into the new
macroblock;

wherein said transformation applied to the motion vectors associated with said input bitstream comprises the operations of:

multiplying said motion vectors by respective weighting factors;
accumulating the results of the above multiplication; and

dividing the results accumulated by the sum of said weighting factors.

Claim's 4, 16 and 28 should be cancelled.

2. The following is an examiner's statement of reasons for allowance: Kim teaches of distinguishing, in said input bitstream, non-affecting portions that substantially do not affect variation in bitrate and affecting portions that substantially do affect variation in bitrate (Note: Figure 1 shows the bitstream being broken into header information (non-affecting) and DCT coefficients (affecting portion), Column 5, Lines 16-33); when said syntax is to be modified between said input bitstream and said output bitstream, subjecting said non-affecting portions of said input bitstream to translation of said syntax into the syntax of said output bitstream and transferring said non-affecting portions subjected to syntax translation to said output bitstream (Note: Figure 1 shows the seq_header and Gop_header (and the other syntax) being introduced to converters (Reference Number 610) that changes their content, Column 5, Lines 34-67); when said resolution is to be modified between said input bitstream and said output bitstream, subjecting said non-affecting portions of said input bitstream to translation of said resolution into the resolution of said output bitstream and transferring said non-affecting portions subjected to the resolution translation to said output bitstream (Column 5, Lines 44-67); transferring said affecting portions from said input bitstream to said output bitstream in substantial absence of processing operations when said resolution is left unaltered between said input bitstream and said output bitstream, and when said

resolution is modified between said input bitstream and said output bitstream, subjecting said affecting portions of said input bitstream to a filtering in the domain of the discrete cosine transform, then transferring said affecting portions subjected to filtering in the domain of the discrete cosine transform to said output bitstream (Note: see Figure 1 and Column 5, Lines 34-43).

Kim fails to specifically teach multiplying the motion vectors by respective weighting factors, accumulating the results of the above multiplication and dividing the results accumulated by the sum of the weighting factors. A further search was conducted that failed to yield any prior art. Therefore, the prior art fails to teach or render obvious these limitations taken within the others in the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. This application is in condition for allowance except for the following formal matters:

Claim's 1, 13 and 25 must be amended as stated above and Claim's 4, 16 and 28 must be cancelled.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

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A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick H. Cathey II whose telephone number is (571)272-7326. The examiner can normally be reached on M-F 7:30 to 5:00 (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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